CP-897 US

Hamada 31762-178058 1-31-02
METHOD OF AND APPARATUS
FOR CALCULATING TRAFFIC
FROM DATA ... 1 of 16

Fig. 1

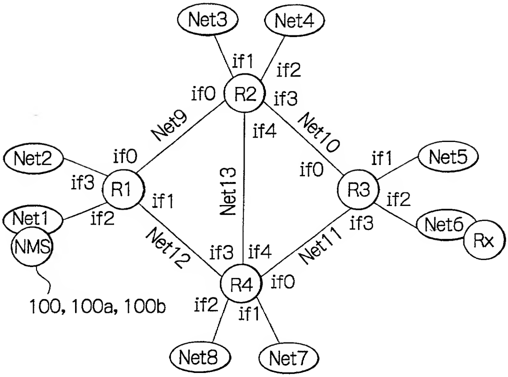

Fig.2

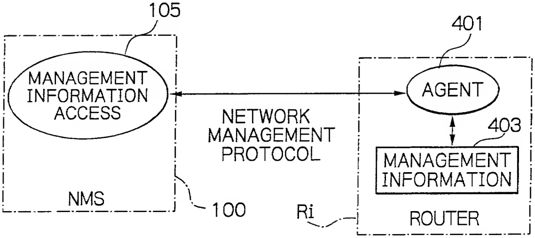

Fig.3

405

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Prot	Destination	Mask	NextRouter	Metric	Interface	Use
C	10.1.1.0	255.255.255.0	–	1	if2	12345
C	10.1.2.0	255.255.255.0	–	1	if3	2356
R	10.1.3.0	255.255.255.0	10.1.9.253	2	if0	32546
R	10.1.4.0	255.255.255.0	10.1.9.253	2	if0	6554
R	10.1.5.0	255.255.255.0	10.1.9.253	3	if0	9877
R	10.1.6.0	255.255.255.0	10.1.9.253	3	if0	45499
R	10.1.7.0	255.255.255.0	10.1.12.253	2	if1	98787
R	10.1.8.0	255.255.255.0	10.1.12.253	2	if1	68987
R	default	0.0.0.0	10.1.9.253	2	if0	69658

Fig. 4

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Destination	NextRouter	If	Use
Net1	–	if2	a1
Net2	–	if3	b1
Net3	R2	if0	c1
Net4	R2	if0	d1
Net5	R2	if0	e1
Net6	R2	if0	f1
Net7	R4	if1	g1
Net8	R4	if1	h1
default	R2	if0	i1

R1 ROUTING TABLE

Fig. 5

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Destination	NextRouter	If	Use
Net1	R1	if0	a2
Net2	R1	if0	b2
Net3	–	if1	c2
Net4	–	if2	d2
Net5	R3	if3	e2
Net6	R3	if3	f2
Net7	R4	if4	g2
Net8	R4	if4	h2
default	R3	if3	i2

R2 ROUTING TABLE

Fig. 6

409

Destination	NextRouter	If	Use
Net1	R4	if3	a3
Net2	R4	if3	b3
Net3	R2	if0	c3
Net4	R2	if0	d3
Net5	–	if1	e3
Net6	–	if2	f3
Net7	R4	if3	g3
Net8	R4	if3	h3
default	–	if2	i3

R3 ROUTING TABLE

Fig.7

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Destination	NextRouter	If	Use
Net1	R1	if3	a4
Net2	R1	if3	b4
Net3	R2	if4	c4
Net4	R2	if4	d4
Net5	R3	if0	e4
Net6	R3	if0	f4
Net7	–	if1	g4
Net8	–	if2	h4
default	R3	if0	i4

R4 ROUTING TABLE

Fig.8

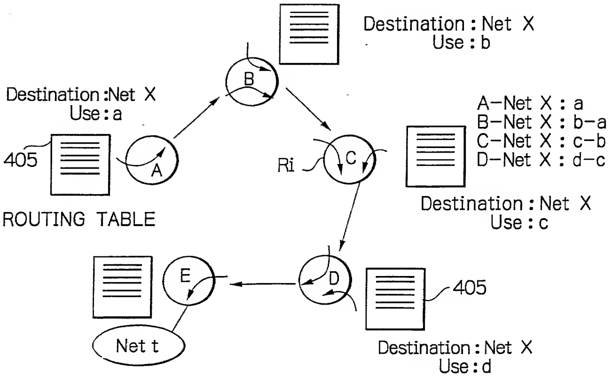

Fig.9

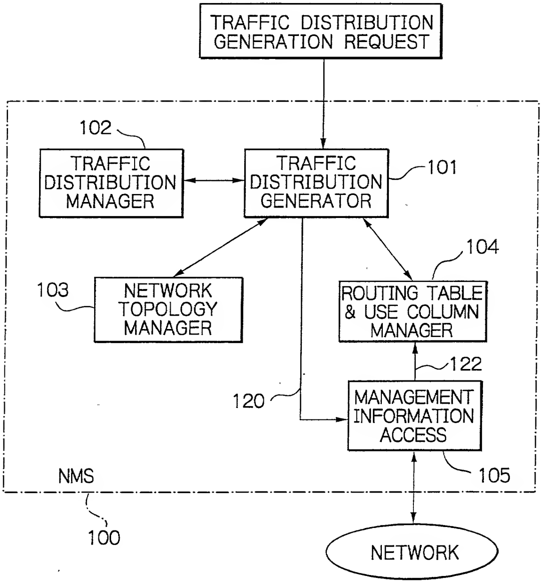
TRAFFIC DISTRIBUTION GENERATION REQUEST
102
TRAFFIC DISTRIBUTION MANAGER
TRAFFIC DISTRIBUTION GENERATOR
101
104
103
NETWORK TOPOLOGY MANAGER
ROUTING TABLE & USE COLUMN MANAGER
122
120
MANAGEMENT INFORMATION ACCESS
NMS
105
100
NETWORK

Fig. 10

		SOURCE ROUTER			
		R1	R2	R3	R4
DESTINATION ROUTER	R1		1		1
	R2	1		1	1
	R2		1		1
	R3	1	1	1	
DESTINATION NETWORK	1	1			
	2	1			
	3		1		
	4		1		
	5			1	
	6			def	
	7				1
	8				1

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Fig. 11

		SOURCE ROUTER			
		R1	R2	R3	R4
DESTINATION NETWORK	Net1	–			
	Net2	–			
	Net3		–		
	Net4		–		
	Net5			–	
	Net6			–	
	Net7				–
	Net8				–

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Fig. 12

124

Router Index	Destination	NextRouter	Use
R1	Net3	R2	c1
R2	Net3	–	c2
R3	Net3	R2	c3
R4	Net3	R2	c4

CALCULATION TABLE RELATING TO Net3

Fig. 13

124

Router Index	Destination	NextRouter	Use
R1	Net4	R2	d1
R2	Net4	–	d2
R3	Net4	R2	d3
R4	Net4	R2	d4

CALCULATION TABLE RELATING TO Net4

Fig. 14

124

Router Index	Destination	NextRouter	Use
R1	Net5	R2	e1
R2	Net5	R3	e2
R3	Net5	–	e3
R4	Net5	R3	e4

CALCULATION TABLE RELATING TO Net5

Fig. 15

124

Router Index	Destination	NextRouter	Use
R1	Net6	R2	f1
R2	Net6	R3	f2
R3	Net6	–	f3
R4	Net6	R3	f4

CALCULATION TABLE RELATING TO Net6

Fig. 16

124

Router Index	Destination	NextRouter	Use
R1	Default	R2	i1
R2	Default	R3	i2
R3	Default	–	i3
R4	Default	R3	i4

CALCULATION TABLE RELATING TO DEFAULT ROUTER

Fig. 17

124

Router Index	Destination	NextRouter	Use
R1	Net7	R4	g1
R2	Net7	R4	g2
R3	Net7	R4	g3
R4	Net7	–	g4

CALCULATION TABLE RELATING TO Net7

Fig.18

124

Router Index	Destination	NextRouter	Use
R1	Net8	R4	h1
R2	Net8	R4	h2
R3	Net8	R4	h3
R4	Net8	–	h4

CALCULATION TABLE RELATING TO Net8

Fig.19

124

Router Index	Destination	NextRouter	Use
R1	Net1	–	a1
R2	Net1	R1	a2
R3	Net1	R4	a3
R4	Net1	R1	a4

CALCULATION TABLE RELATING TO Net1

Fig.20

124

Router Index	Destination	NextRouter	Use
R1	Net2	–	b1
R2	Net2	R1	b2
R3	Net2	R4	b3
R4	Net2	R1	b4

CALCULATION TABLE RELATING TO Net2

Fig.21

		SOURCE ROUTER			
		R1	R2	R3	R4
DESTINATION NETWORK	Net1	–	a2	a3	a4–a3
	Net2	–	b2	b3	b4–b3
	Net3	c1	–	c3	c4
	Net4	d1	–	d3	d4
	Net5	e1	e2–e1	–	e4
	Net6	f1+i1	f2–f1+i2–i1	–	f4–i4
	Net7	g1	g2	g3	–
	Net8	h1	h2	h3	–

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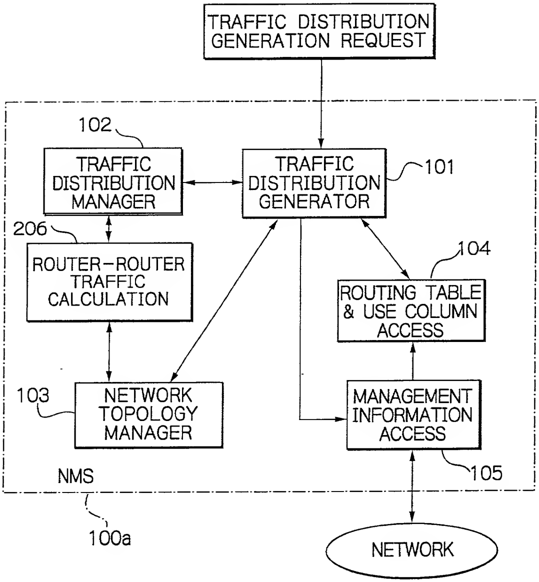
Fig.22


TRAFFIC DISTRIBUTION GENERATION REQUEST
102
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ROUTER-ROUTER TRAFFIC CALCULATION
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ROUTING TABLE & USE COLUMN ACCESS
103
NETWORK TOPOLOGY MANAGER
MANAGEMENT INFORMATION ACCESS
105
NMS
100a
NETWORK

Fig.23

		SOURCE ROUTER			
		R1	R2	R3	R4
DESTINATION ROUTER	R1	–			
	R2		–		
	R3			–	
	R4				–

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Fig.24

		SOURCE ROUTER			
		R1	R2	R3	R4
DESTINATION ROUTER	R1	–	a2+b2	a3+b3	a4–a3+b4–b3
	R2	c1+d1	–	c3+d3	c4+d4
	R3	e1+f1+i1	f2–f1+e2–e1+i2–i1	–	e4+f4+i4
	R4	g1+h1	g2+h2	g3+h3	–

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Fig.25

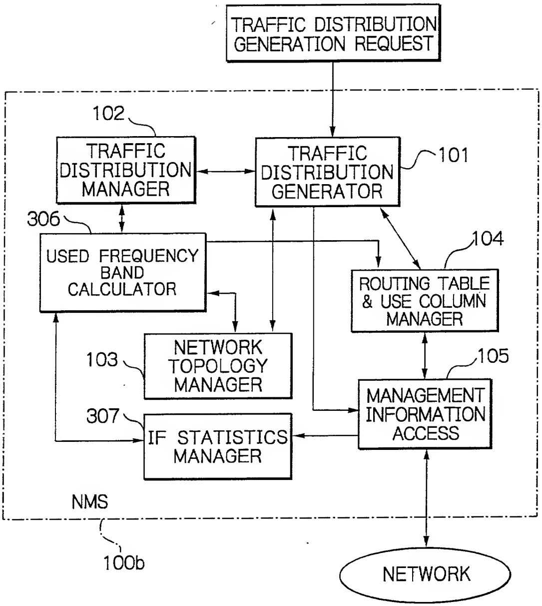

Fig.26

309

Interface	ifOutPkts	ifOutOctets
if0	4536	1357884
if1	15660	6546900
if2	1239	309750
if3	63554	25421600

Fig.27

Interface	ifOutPkts	ifOutOctets
if0	l1	v1
if1	m1	w1
if2	n1	x1
if3	o1	y1

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Fig.28

Interface	ifOutPkts	ifOutOctets
if0	l2	v2
if1	m2	w2
if2	n2	x2
if3	o2	y2
if4	p2	z2

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Fig.29

Interface	ifOutPkts	ifOutOctets
if0	l3	v3
if1	m3	w3
if2	n3	x3
if3	o3	y3

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Fig.30

Interface	ifOutPkts	ifOutOctets
if0	l4	v4
if1	m4	w4
if2	n4	x4
if3	o4	y4
if4	p4	z4

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Fig.31

Destination Network	ifOutPkts	ifOutOctets
Net1	n1	x1
Net2	o1	y1
Net3	m2	w2
Net4	n2	x2
Net5	m3	w3
Net6	n3	x3
Net7	m4	w4
Net8	n4	x4

Fig.32

Destination Network	MeanL3PacketLength
Net1	(x1'−x1)/(n1'−n1)−hd
Net2	(y1'−y1)/(o1'−o1)−hd
Net3	(w2'−w2)/(m2'−m2)−hd
Net4	(x2'−x2)/(n2'−n2)−hd
Net5	(w3'−w3)/(m3'−m3)−hd
Net6	(x3'−x3)/(n3'−n3)−hd
Net7	(w4'−w4)/(m4'−m4)−hd
Net8	(x4'−x4)/(n4'−n4)−hd

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Fig.33

DESTINATION NETWORK	SOURCE ROUTER R1	R2	R3	R4
Net1	–	D7	D13	D19
Net2	–	D8	D14	D20
Net3	D1	–	D15	D21
Net4	D2	–	D16	D22
Net5	D3	D9	–	D23
Net6	D4	D10	–	D24
Net7	D5	D11	D17	–
Net8	D6	D12	D18	–

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Fig.34

DESTINATION NETWORK	SOURCE ROUTER R1	R2	R3	R4
Net1	–	D7*((x1'–x1)/(n1'–n1)–hd)	D13*((x1'–x1)/(n1'–n1)–hd)	D19*((x1'–x1)/(n1'–n1)–hd)
Net2	–	D8*((y1'–y1)/(o1'–o1)–hd)	D14*((y1'–y1)/(o1'–o1)–hd)	D20*((y1'–y1)/(o1'–o1)–hd)
Net3	D1*((w2'–w2)/(m2'–m2)–hd)	–	D15*((w2'–w2)/(m2'–m2)–hd)	D21*((w2'–w2)/(m2'–m2)–hd)
Net4	D2* ((x2'–x2)/(n2'–n2)–hd)	–	D16* ((x2'–x2)/(n2'–n2)–hd)	D22*((x2'–x2)/(n2'–n2)–hd)
Net5	D3*((w3'–w3)/(m3'–m3)–hd)	D9*((w3'–w3)/(m3'–m3)–hd)	–	D23*((w3'–w3)/(m3'–m3)–hd)
Net6	D4*((x3'–x3)/(n3'–n3)–hd)	D10*((x3'–x3)/(n3'–n3)–hd)	–	D24*((x3'–x3)/(n3'–n3)–hd)
Net7	D5*((w4'–w4)/(m4'–m4)–hd)	D11*((w4'–w4)/(m4'–m4)–hd	D17*((w4'–w4)/(m4'–m4)–hd	–
Net8	D6*((x4'–x4)/(n4'–n4)–hd)	D12*((x4'–x4)/(n4'–n4)–hd)	D18*((x4'–x4)/(n4'–n4)–hd)	–